

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

1-37. (Canceled)

38. (Previously presented) A system for characterizing respiration of a patient, comprising:  
a respiration waveform sensor configured to acquire a respiration waveform;  
a respiration processor configured to determine one or more characteristics associated with the respiration and comprising a trigger circuit configured to detect a triggering event; and  
a waveform generator coupled to the respiration waveform sensor and the respiration processor, the waveform generator configured to generate a marked respiration waveform comprising the respiration waveform and symbols indicating the one or more characteristics associated with the respiration, the generation of the marked respiration waveform being activated in response to the detection of the triggering event, and the symbols including a first symbol indicating a first respiration characteristic and a second symbol indicating a second respiration characteristic different from the first respiration characteristic, the first and second symbols being aligned relative to the respiration waveform to indicate times of occurrence of the first and second respiration characteristics respectively;  
wherein at least one of the respiration waveform sensor, the respiration processor, and the waveform generator comprises an implantable component.

39. (Original) The system of claim 38, wherein at least two of the respiration waveform sensor, the respiration processor, and the waveform generator comprise an implantable component.

40. (Original) The system of claim 38, wherein each of the respiration waveform sensor, the respiration processor, and the waveform generator comprise an implantable component.

41. (Original) The system of claim 38, wherein at least one of the respiration waveform sensor, the respiration processor, and the waveform generator are wirelessly coupled to an external device.

42. (Original) The system of claim 38, wherein a component of at least one of the respiration waveform sensor, the respiration processor, and the waveform generator is mechanically coupled to a cardiac rhythm management device.

43. (Withdrawn) The system of claim 38, wherein a component of at least one of the respiration waveform sensor, the respiration processor, and the waveform generator is mechanically coupled to a positive airway pressure device.

44. (Original) The system of claim 38, wherein the respiration waveform sensor comprises a transthoracic impedance sensor.

45. (Withdrawn) The system of claim 38, wherein the respiration waveform sensor comprises an airflow sensor.

46. (Original) The system of claim 38, further comprising a sensing system coupled to the respiration processor, the sensing system configured to sense one or more conditions associated with the respiration.

47. (Original) The system of claim 46, wherein the sensing system comprises a physiological sensor.

48. (Original) The system of claim 46, wherein the sensing system comprises a non-physiological sensor.

49. (Canceled)

50. (Previously presented) The system of claim 38, wherein:

the respiration processor comprises a disordered breathing processor configured to detect disordered breathing; and

the triggering event comprises the detection of the disordered breathing.

51. (Original) The system of claim 38, wherein the respiration processor comprises a disordered breathing processor configured to determine one or more characteristics associated with the disordered breathing.

52. (Original) The system of claim 38, wherein the one or more characteristics associated with the respiration comprises oxygen de-saturation.

53. (Original) The system of claim 38, wherein the one or more characteristics associated with the respiration comprise one or more characteristics of a pulmonary disease.

54. (Previously presented) The system of claim 38, wherein the respiration processor is further configured to distinguish between different types of disordered breathing, and the first respiration characteristic comprises a type of disordered breathing selected from the different types of disordered breathing.

55. (Original) The system of claim 54, wherein the type of the disordered breathing comprises central disordered breathing.

56. (Original) The system of claim 54, wherein the type of the disordered breathing comprises obstructive disordered breathing.

57. (Original) The system of claim 54, wherein the type of the disordered breathing comprises mixed central and obstructive disordered breathing.

58. (Original) The system of claim 54, wherein the type of the disordered breathing comprises apnea.

59. (Original) The system of claim 54, wherein the type of the disordered breathing comprises hypopnea.

60. (Original) The system of claim 54, wherein the type of the disordered breathing comprises mixed apnea and hypopnea.

61. (Original) The system of claim 54, wherein the type of the disordered breathing comprises Cheyne-Stokes respiration.

62. (Original) The system of claim 54, wherein the type of the disordered breathing comprises periodic breathing.

63. (Original) The system of claim 54, wherein the type of the disordered breathing comprises sleep disordered breathing.

64. (Original) The system of claim 38, wherein the one or more characteristics associated with the respiration comprises a duration of disordered breathing.

65. (Original) The system of claim 38, wherein the one or more characteristics associated with the respiration comprises a respiration rate.

66. (Original) The system of claim 38, wherein the one or more characteristics associated with the respiration comprises a respiration volume.

67. (Original) The system of claim 38, wherein the one or more characteristics associated with the respiration comprises minute ventilation.

68. (Original) The system of claim 38, wherein the one or more characteristics associated with the respiration comprises expiration slope.

69. (Original) The system of claim 38, wherein the one or more characteristics associated with the respiration comprises expiration volume.

70. (Original) The system of claim 38, wherein the respiration processor is configured to detect the one or more characteristics associated with the respiration based on morphological features of the respiratory waveform.

71. (Original) The system of claim 38, wherein the respiration processor is configured to detect the one or more characteristics associated with the respiration based on physiological conditions.

72. (Original) The system of claim 38, wherein the respiration processor is configured to detect the one or more characteristics associated with the respiration based on contextual conditions.

73. (Canceled)

74. (Canceled)

75. (Original) The system of claim 38, wherein the waveform generator is configured to acquire one or more additional waveforms.

76. (Original) The system of claim 75, wherein the one or more additional waveforms comprise one or more physiological waveforms.

77. (Original) The system of claim 75, wherein the one or more additional waveforms comprise a cardiac waveform.

78. (Original) The system of claim 38, further comprising a communication device configured to transmit information about at least one of the respiration waveform, the one or more characteristics associated with the respiration, and the marked respiration waveform.

79. (Original) The system of claim 38, further comprising a display configured to display the marked respiration waveform.

80. (Original) The system of claim 38, further comprising a memory configured to store information about at least one of the respiration waveform, the one or more characteristics associated with the patient respiration, and the marked respiration waveform.

81. (Previously presented) A system for characterizing respiration of a patient, comprising:  
means for acquiring a respiration waveform;  
means for detecting one or more characteristics associated with the respiration;  
means for detecting a triggering event; and  
means for generating a marked respiration waveform in response to the triggering event using the respiration waveform and one or more symbols indicating the one or more characteristics associated with the respiration, the one or more symbols including a first symbol indicating a first respiration characteristic and a second symbol indicating a second respiration characteristic different from the first respiration characteristic, the first and second symbols being aligned relative to the respiration waveform to indicate times of occurrence of the first and second respiration characteristics respectively;  
wherein at least one of the means for acquiring, means for detecting, and means for generating includes an implantable component.

82. (Canceled)

83. (Original) The system of claim 81, further comprising means for acquiring one or more additional waveforms, wherein the means for generating the marked respiration waveform comprises means for generating the marked respiration waveform using the one or more additional waveforms.

84. (Original) The method of claim 81, further comprising means for transmitting information about at least one of the respiration waveform, the one or more characteristics associated with the patient respiration, and the marked respiration waveform.

85. (Original) The system of claim 81, further comprising means for displaying the marked respiration waveform.

86. (Original) The method of claim 81, further comprising means for storing information about at least one of the respiration waveform, the one or more characteristics associated with the patient respiration and the marked respiration waveform.